



File: 8856-3.1  
C. Parker  
**DEPARTMENT OF THE NAVY**  
ENGINEERING FIELD ACTIVITY, NORTHEAST  
NAVAL FACILITIES ENGINEERING COMMAND  
10 INDUSTRIAL HIGHWAY  
MAIL STOP, #82  
LESTER, PA 19113-2080

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NAVSTA NEWPORT RI  
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IN REPLY REFER TO

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June 9, 2004

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Ms. Kymberlee Keckler, Remedial Project Manager  
Federal Facilities Superfund Section  
USEPA Region 1  
1 Congress Street, Suite 1100  
Boston MA, 02114-2023

Mr. Paul Kulpa, Project Manager  
Office of Waste Management  
Rhode Island Department Of Environmental Management  
235 Promenade St.  
Providence Rhode Island, 02908-5767

SUBJECT: RESPONSE TO COMMENTS, REVISED WORK PLAN FOR BACKGROUND  
SOIL INVESTIGATION (12/03), STUDY AREA 08, NUSC  
DISPOSAL AREA, NAVAL UNDERWATER WARFARE CENTER,  
MIDDLETOWN, RHODE ISLAND

Dear Ms. Keckler/ Mr. Kulpa:

The Navy's responses to EPA and RIDEM comments on the subject Work Plan, prepared by Tetra Tech NUS, Inc. December 2003, are provided as enclosure (1) and (2), respectively. Comments were provided to the Navy by the US Environmental Protection Agency (USEPA) on January 23, 2004 and by the Rhode Island Department of Environmental Management (RIDEM) on January 29, 2004.

A figure showing proposed revised sample locations is also attached, which has been prepared based on RIDEM's primary comment in the cover letter to their comment set. These revised proposed sample stations were provided to the U.S. EPA and RIDEM via e-mail on February 23, 2004.

It is our understanding that RIDEM remediation regulations revision dated February 24, 2004 place a ceiling on the arsenic levels which will be allowed to remain in soils at remediation sites in Rhode Island. As stated in correspondence February 27, 2004, data collected at the NUSC site indicate that at a minimum, arsenic concentrations in soil exceed this ceiling. Based on data that has been generated at the various sites at NAVSTA, it

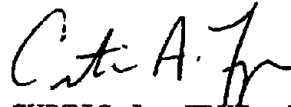
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appears that arsenic levels in the soils on Aquidneck Island are naturally elevated. For these reasons this background study is necessary to differentiate the risks associated with the fill at the NUSC Disposal Area from the risks associated with naturally occurring arsenic and other naturally-occurring metals.

The Navy plans to provide a final revision to the Background Work Plan, and then proceed with field work accordingly, prior to the end of this fiscal year.

If you have any questions, please do not hesitate to contact me at 610-595-0567 extension 142.

Sincerely,



CURTIS A. FRYE, P.E.  
Remedial Project Manager  
By direction of the  
Commanding Officer

Enclosure:

1. Navy Responses to Comments from USEPA on the Revised Work Plan for Background Soil Investigation, Study Area 08, NUSC Disposal Area (Comments Dated January 23, 2004)
2. Navy Responses to Comments from RIDEM on the Revised Work Plan for Background Soil Investigation, Study Area 08, NUSC Disposal Area (Comments Dated January 29, 2004)

Copy to:

- C. Mueller, NSN (w/encl)
- S. McFadden, TAG (w/encl)
- R. Machado, NUWC (w/encl)
- J. Stump, Gannett Fleming (w/encl)

**Responses to Comments from the USEPA on the  
Revised Work Plan for Background Soil Investigation,  
NUSC Disposal Area  
Comments Dated January 23, 2004**

**Comment:** General comment 2 discussed the selection of the alpha and beta levels for the Wilcoxon Rank Sum tests to be performed using background versus site data. The selection of the alpha level may affect the constituents that are retained as Chemicals of Potential Concern (COPCs) following the background comparisons. According to EPA's Guidance for Comparing Background and Chemical Concentrations in Soil for CERCLA Sites (September 2002), to perform a one-tailed Test Form 1 hypothesis (where the null hypothesis is that the site concentrations are less than or the same as background concentrations), EPA recommends the confidence level of 80% to 95% (alpha level of 0.2 to 0.05) and the more conservative level is 0.2. EPA could accept the Navy's selected alpha level, however, we would like to emphasize that there is an uncertainty with adopting this approach. The Navy has presented a clear explanation of their rationale for selecting an alpha level of 0.05. While EPA understands the Navy's concern regarding the inclusion of constituents in the risk assessment that have a lower significance level, EPA, in general, is in favor of using an alpha level of 0.2 when using a one-tailed Test Form 1 hypothesis to avoid Type II errors. EPA's approach is in keeping with the goals of the risk assessment as stated in the NCP - which biases the estimates on the conservative side when estimating risks.

However, in spite of EPA's concerns, and because the Navy has agreed to include retrospective tests of power as part of their statistical testing, to allow this project to move forward, EPA will agree to the alpha level of 0.05 for the WRS comparisons between background and site data. In addition, please present the WRS W value (or equivalent Mann Whitney U value) for each test and the level at which the test is significant in statistical sections to be included in the report. EPA reiterates that if the power of a test is found to be inadequate to reject the null hypothesis, then the constituent should be included in the risk assessment process. EPA will be closely scrutinizing constituent results for indications that the site data are greater than background data in order to ensure that COPCs are not incorrectly omitted from the risk assessment process through being classified as background-related rather than site-related.

**Response:**

The Navy concurs with the approach suggested above.

**Enclosure (1)**

**Responses to Comments from RIDEM on the  
Revised Work Plan for Background Soil Investigation,  
NUSC Disposal Area  
Comments Dated January 29, 2004**

**Section B-1: Cover Letter Comment**

*General Comment: The primary concern with the work plan was the Navy's proposal to collect background samples in locations, which were not consistent with the Rules and Regulations for the Investigation and Remediation of Hazardous Material Releases as amended 1996. In a meeting held on January 21, 2004 the Navy agreed to select alternate locations using the same procedures that were employed in the background study for the Old Fire Fighter Training Area. Specifically, the Navy would provide the appropriate maps and historical aerial photographs so that locations could be selected and approved.*

**Response:** The Navy has revised the proposed locations to areas which have not been cultivated or altered during the period of aerial photography available (1939 to present) at the RIDEM offices. The revised locations lie within the target soil types. Revised locations were provided to RIDEM on February 24, 2004, and are depicted on Figure 3-1 (attached to this response package).

**Section B-2: Comments on the draft document that were not addressed in the draft final version.**

- 1. Section 1.1 Specific Investigation Objectives; Page 1-1, Whole Section.**
- 5. Section 2.2.4, Definition of Study Boundaries; Page 2-9.**
- 6. Section 3.2, Soil Sampling; Page 3-1, Whole Section.**

***Evaluation of Navy's Response in Draft Final Document***

*The above comments on the draft document dealt with the proposed location of background samples. Specifically, the proposed locations are not in concert with the requirements outlined in the RIDEM Rules and Regulations for the Investigation and Remediation of Hazardous Material Releases, as amended August 1996. The Navy has agreed to select new background sample locations using the same procedures, which were utilized in the background study for the Old Fire Fighter Training Area. That is, the appropriate maps and historical aerial photographs will be provided by the Navy and background sample locations will be selected and approved.*

**Response:** Refer to the response to the cover letter comment, above. Revised locations have been selected based on the criteria described above.

- 8. Section 5.0, Data Analysis and Statistical Testing;  
Page 5-1, Whole Section.**

*This section of the work plan discusses the statistical test that will be used to evaluate the data. Although not stated it is assumed that this evaluation will include results for standard statistical test. These tests include, but are not limited to, the mean (geometric/arithmetic), median, mode, variance, range, minimum, maximum standard deviation, interquartile range, percentiles, variation, sum, count confidence level skewness, and kurtosis. All of this information should be presented in table format as appropriate. In addition the sample results for a particular contaminant that the Navy is performing a background assessment on, will be depicted in tables in ascending order. The Office of Waste Management recommends placing the above statistical data below the ascending order values.*

Enclosure (2)

*Evaluation of Navy's Response in Draft Final Document.*

*The Navy stated that the requested material would be provided. This material was not found in the draft final document. These are standard statistical tests, which are used in conjunction with other tests in an overall evaluation of the data. Therefore, the work plan must be modified to include these tests*

**Response:**

The information requested would be generated and described with the statistical tests cited in the work plan. In order to be more clear, the table summaries requested in the comment above will be specifically cited in Section 5 of the work plan.

**Section B-3: Additional comments, based upon modifications made to the draft document**

**1. Section 5.0, Data Analysis and Statistical Testing;  
Page 5-1, Whole Section.**

*This section of the work plan lists the different statistical tests, which will be employed at the site. It is common knowledge that the various statistical tests have their individual strengths and weakness. Typically, to address this problem, more than one statistical test is performed in each evaluation. As an illustration, the test for normality may be evaluated using both the Shapiro Wilks test and a Normal Probability Plot or the Fillbens Statistics, Studentized Range Test, etc. Since most of the statistical tests are available in computer programs this is not considered to be a cumbersome effort. Therefore, the work must note that, that more than one statistical test will be employed in the various analyses. The following are statistical tests which may be appropriate for the various evaluations.*

*Normality      Shapiro Wilks, Fillbens Statistics, Normal Probability Plot, Histogram or Graphical Evaluation.*

*Outliers Test      Dicordance Test, Rosners Test, Dixon's Test*

*In regards to the comparisons of the various data sets, the work plan has noted that more than one test may be employed and has listed a variety of tests.*

*Finally, although not stated, it is assumed that when the statistical evaluation is performed the report will note the strengths and weakness of the individual test employed and the critical values associated with each test*

**Response:**

The Navy concurs with the intent of the comment. Replicate tests will be conducted if necessary. However, which tests to run do depend on the distribution of the data. Rather than develop a lengthy discourse on possible tests to run under different scenarios; it is recommended that a technical discussion be held to consider the tests to conduct after the data set is established. The work plan and the comments above will be the starting point for this discussion, but it is general understanding that exact testing of the data does depend on the data itself.

Enclosure (2)

# PROPOSED REVISED BACKGROUND SOIL SAMPLE STATIONS

